[redacted]

IN THE CLAIMS:

1. (Original) An isolated, synthetic or recombinant ω-conotoxin peptide in which the fourth loop between cysteine residues 5 and 6 comprises the following sequence of amino acids:

SGTVGR [SEQ ID NO: 1]

or such a sequence which has undergone one or more conservative amino acid substitutions or side chain modifications.

2. (Original) An isolated, synthetic or recombinant ω-conotoxin peptide according to claim 1 in which the fourth loop consists of the sequence:

SGTVGR [SEQ ID NO: 1]

or such a sequence which has undergone one or more amino acid substitutions or side chain modifications.

3. (Previously presented) An isolated, synthetic or recombinant ω-conotoxin peptide according to claim 1 wherein each of the first, second and third loops of the ω-conotoxin peptide corresponds to the loop of a naturally occurring ω-conotoxin peptide, or such a sequence of amino acids which has undergone one or more amino acid substitutions, additions or deletions.

4. (Original) An isolated, synthetic or recombinant ω-conotoxin peptide according to claim 1 wherein the second loop is selected from:

SKLMYD [SEQ ID NO: 2],
SRLMYD [SEQ ID NO: 3],
DRLMYD [SEQ ID NO: 4],
DKLMYD [SEQ ID NO: 33],
SKLAYD [SEQ ID NO: 34],
SKLNleYD [SEQ ID NO: 35],
SRLNleYD [SEQ ID NO: 36],
SKLOhmhserYD [SEQ ID NO: 37],

SKLOmserYD [SEQ ID NO: 38],

5. (Previously presented) An isolated, synthetic or recombinant ω-conotoxin peptide according to claim 1 having the following sequence:

CKSKGAKCSKLMYDCCSGSCSGTVGRC [SEQ ID NO: 5]
CKSKGAKCSRLMYDCCSGSCSGTVGRC [SEQ ID NO: 6]
CKSKGAKCDRLMYDCCSGSCSGTVGRC [SEQ ID NO: 7]
CRSKGAKCSKLMYDCCSGSCSGTVGRC [SEQ ID NO: 14]
CKSKGARCSKLMYDCCSGSCSGTVGRC [SEQ ID NO: 15]
CKSKGAQCSKLMYDCCSGSCSGTVGRC [SEQ ID NO: 16]
CKSKGAKCSKLMYDCCSGSCSGAVGRC [SEQ ID NO: 17]
CKSKGAKCDKLMYDCCSGSCSGTVGRC [SEQ ID NO: 18]
CKYKGAKCSRLMYDCCSGSCSGTVGRC [SEQ ID NO: 19]
CKSKGAKCSKLAYDCCSGSCSGTVGRC [SEQ ID NO: 20]
CKSKGAKCSKLMYDCCTGSCSGTVGRC [SEQ ID NO: 21]
CKSKDalAKCSKLMYDCCSGSCSGTVGRC [SEQ ID NO: 22]
CKSKGAKCSKLMYDCCSGSCSGTVGRCY [SEQ ID NO: 23]
CKSKGAKCSKLMYDCCSGSCSGTVGRC [SEQ ID NO: 24]
YCKSKGAKCSKLMYDCCSGSCSGTVGRC [SEQ ID NO: 25]
CKSKGAKCSKLMYDCCSGSCSGTVGRC [SEQ ID NO: 26]
CKSKGAKCSKLNleYDCCSGSCSGTVGRC [SEQ ID NO: 27]
CKSKGAKCSRLNleYDCCSGSCSGTVGRC [SEQ ID NO: 28]
CKYKGAKCSRLNleYDCCSGSCSGTVGRC [SEQ ID NO: 29]
CKSKGAKCSKLOmhserYDCCSGSCSGTVGRC [SEQ ID NO: 30]
CKSKGAKCSKLOmserYDCCSGSCSGTVGRC [SEQ ID NO: 31]
CKSKGAKCSKLM(O)YDCCSGSCSGTVGRC [SEQ ID NO: 32]

6. (Original) An isolated, synthetic or recombinant ω-conotoxin peptide according to claim 5 having one of the following sequences:

CKSKGAKCSKLMYDCCSGSCSGTVGRC [SEQ ID NO: 5]
CRSKGAKCSKLMYDCCSGSCSGTVGRC [SEQ ID NO: 14]

CKSKGARCSKLMYDCCSGSCSGTVGRC [SEQ ID NO: 15]
CKSKGAKCSKLAYDCCSGSCSGTVGRC [SEQ ID NO: 20]
CKSKGAKCSKLNleYDCCSGSCSGTVGRC [SEQ ID NO: 27]
CKSKGAKCSRLNleYDCCSGSCSGTVGRC [SEQ ID NO: 28]
CKSKGAKCSKLOmhserYDCCSGSCSGTVGRC [SEQ ID NO: 30]
CKSKGAKCSKLOmserYDCCSGSCSGTVGRC [SEQ ID NO: 31].

7. (Original) An isolated, synthetic or recombinant ω-conotoxin peptide according to claim 1 having the following sequence:

CKSKGAKCSKLMYDCCSGSCSGTVGRC [SEQ ID NO: 5].

8. (Previously presented) An isolated, synthetic or recombinant ω-conotoxin peptide according to claim 1 having a selectivity for N-type calcium channels over P/Q-type calcium channels.

9. (Currently amended) ~~Use of an isolated, synthetic or recombinant ω-conotoxin peptide according to claim 1 in a receptor binding assay to test the calcium channel binding activity of a peptide or other compound~~ A method of testing the calcium channel binding activity of a test peptide or compound, comprising (1) determining the level of binding of an isolated, synthetic or recombinant ω-conotoxin peptide according to claim 1 to calcium channels in the absence of said test peptide or compound, (2) determining the level of binding of said isolated, synthetic or recombinant ω-conotoxin peptide to calcium channels in the presence of said test peptide or compound, and (3) comparing the level determined in step (1) to the level determined in step (2).

10. (Withdrawn) An isolated nucleic acid molecule comprising a sequence of nucleotides encoding or complementary to a sequence encoding a ω-conotoxin peptide according to claim 1.

11. (Withdrawn) A nucleic acid probe comprising a sequence of nucleotides encoding or complementary to a sequence encoding all or part of an ω-conotoxin peptide according

to claim 1, said probe encoding or complementary to all or part of the fourth loop of said ω-conotoxin peptide.

12. (Withdrawn) A monoclonal or polyclonal antibody to an ω-conotoxin peptide according to claim 1.

13. (Withdrawn) A genetic construct comprising a vector portion and a nucleic acid capable of encoding a peptide according to claim 1.

14. (Original) A composition comprising: an isolated, synthetic or recombinant ω-conotoxin peptide in which the fourth loop between cysteine residues 5 and 6 comprises the following sequence of amino acids:

SGTVGR [SEQ ID NO: 1]

or such a sequence which has undergone one or more conservative amino acid substitutions, and

a pharmaceutically acceptable carrier or diluent.

15-16. (Canceled)

17. (Original) A method for the treatment of conditions for which blockade of N-type calcium channels is associated with effective treatment including the step of administering to a mammal an effective amount of an isolated or recombinant ω-conotoxin peptide in which the fourth loop between cysteine residues 5 and 6 comprises the following sequence of amino acids:

SGTVGR [SEQ ID NO: 1]

or such a sequence which has undergone one or more conservative amino acid substitutions or side chain modifications.

18. (Original) A method for reducing neuronal damage following ischemia, for the production of analgesia, for enhancement of opiate analgesia, for the treatment of schizophrenia, hypertension, inflammation or diseases which cause bronchoconstriction,

stimulant psychoses or for inhibition of progression of neuropathic pain including the step of administering to a mammal an effective amount of an isolated or recombinant ω-conotoxin peptide in which the fourth loop between cysteine residues 5 and 6 comprises the following sequence of amino acids:

SGTVGR [SEQ ID NO: 1]

or such a sequence which has undergone one or more conservative amino acid substitutions or side chain modifications.

19. (Currently amended) ~~Use of an isolated, synthetic or recombinant ω-conotoxin peptide according to any one of the preceding claims in a screen to identify compounds with activity at N-type VSCCs~~ A method of screening for identifying compounds which bind to N-type voltage sensitive calcium channels, comprising (1) determining the level of binding of an isolated, synthetic or recombinant ω-conotoxin peptide according to claim 1 to N-type voltage sensitive calcium channels in the absence of a test compound, (2) determining the level of binding of said isolated, synthetic or recombinant ω-conotoxin peptide to calcium channels in the presence of said test compound, and (3) comparing the level determined in step (1) to the level determined in step (2), thereby identifying compounds which bind to N-type voltage sensitive calcium channels.

20. (New) An isolated recombinant or synthetic ω–conotoxin peptide, wherein said ω-conotoxin peptide binds to voltage sensitive calcium channels and comprises six Cysteine residues, wherein the fourth loop between cysteine residues 5 and 6 comprises the amino acid sequence as set forth in SEQ ID NO: 1 or such a sequence which has undergone one or more conservative amino acid substitutions or side chain modifications, and wherein SEQ ID NO: 1 is directly adjacent to a cysteine at both its NH2 and the COOH terminus.